

PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

Project Description <i>from TIP, RTP, and/or project documents</i> SR-91 at Van Buren Blvd, Reconstruct ramps, widen over-crossing, add new EB on-ramp		RTIP ID#: RIV 0084	
Type of project <i>see list below</i> Reconfigure existing interchange			
County: Riverside	Narrative Location/Route & Postmiles: State Route 91 at Van Buren Blvd Interchange, PM 13.6 to 14.5 Caltrans Projects – EA#: 203200		
Lead Agency:			
Contact Person Philip Hannawi	Phone# 951-826-5706	Fax# 951-826-5542	Email phannawi@riversideca.gov
Decision Desired <i>Check appropriate box below</i>			
PM2.5		MAYBE Project of Air Quality Concern	x
PM10		MAYBE Project of Air Quality Concern	x
Federal Action for which PM Analysis is Needed <i>Check appropriate box and describe in Comments below</i>			
Categorical Exclusion (NEPA)		EA or Draft EIS	x
		FONSI or Final EIS	
		PS&E or Construction	
			Other
Scheduled Date of Federal Action:			
Current Programming Dates <i>as appropriate</i>			
	PE/Environmental	ENG	ROW
Start	96	06	06
End	06	07	08
Project Purpose and Need (Summary): <i>Attach additional sheets as necessary</i> The purpose of the project is to relieve existing traffic congestion, and accommodate future projected traffic volumes at the SR-91 interchange with Van Buren Boulevard.			
Surrounding Land Use/Traffic Generators (especially effect on diesel traffic) Commercial uses along major cross-streets fronting residential uses on local collectors			
Build and No Build LOS, AADT, % trucks, truck AADT of proposed facility (opening year) F,140,908, 5.36%, 7,849 (mainline 91 data)			
Build and No Build LOS, AADT, % trucks, truck AADT of proposed facility (RTP horizon year or design year) F,186,119, 5.36%, 9,976 (mainline 91 data)			

If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % trucks, truck AADT (opening year)

30,069, 3.0%, 902

If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % trucks, truck AADT (RTP horizon year):

40,059, 3.0%, 1,202

Describe potential traffic redistribution effects of congestion relief

No substantial traffic redistribution is anticipated from project implementation. Similar interchange improvements are planned for SR-91 over-crossings both north-east and south-west of the Van Buren/SR-91 such that congestion relief at the project site will not attract additional traffic. The project traffic study forecasts no difference in over-crossing traffic volumes without or with the project.

Comments/Explanation/Details

Attach additional sheets as necessary; include narrative reason why POAQC or Not POAQC decision is appropriate

See attached PM 2.5 "Hot Spot" Conformity Finding Report dated 5/31/06

TYPE OF PROJECT:

New state highway

Change to existing state highway

New regionally significant street

Change to existing regionally significant street

New interchange

Reconfigure existing interchange

Intersection channelization

Intersection signalization

Roadway realignment

Bus, rail, or inter-modal facility/terminal/transfer point

Truck weight/inspection station

At or affects location identified in the SIP as a site of actual or possible violation of NAAQS

REFERENCE:

Criteria for Projects of Air Quality Concern (40 CFR 93.123(b)(1)) – PM₁₀ and PM_{2.5} Hot Spots

- (i) *New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;*
- (ii) *Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;*
- (iii) *New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;*
- (iv) *Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and*
- (v) *Projects in or affecting locations, areas, or categories of sites which are identified in the PM₁₀ or PM_{2.5} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.*

PM-2.5 "HOT-SPOT" CONFORMITY FINDING
SR-91/VAN BUREN BOULEVARD INTERCHANGE PROJECT
AND SR-91 IMPROVEMENT (KP21.9 TO KP 23.3)
RIVERSIDE, CALIFORNIA

Prepared for:

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Date:

P06-047

May 31, 2006

EXECUTIVE SUMMARY

On March 10, 2006, the U. S. Environmental Protection Agency (EPA) issued its final rule on small-diameter particulate matter (PM-2.5) "hot-spot" analysis. The rule specifies project-level transportation conformity determination requirements relative to the national ambient air quality standard for PM-2.5. The rule requires preparation of a quantitative PM-2.5 hot-spot analysis (primarily for diesel particulate matter (DPM) emissions) for "Projects of Air Quality Concern" (POAQC) in both PM-2.5 non-attainment and maintenance areas. Analysis protocols for POAQC have not yet been developed such that any such analysis must necessarily be qualitative.

The rule identifies various types of projects that would be considered POAQC. The rule also provides some initial guidance on types of projects that would clearly not be POAQCs, and thus exempt from a hot-spot analysis requirement. POAQCs are projects that will increase the number of diesel-powered vehicles within a limited area, or those that increase congestion with longer idling times for a substantial number of diesel vehicles. Transportation projects that improve traffic flow with no increase in idling, and those that carry only a limited number of diesel-powered vehicles are considered non-POAQC, and thus exempt from the rule requirements.

The City of Riverside (City), in cooperation with the Riverside County Transportation Commission (RCTC) and the California Department of Transportation District 8 (Caltrans), proposes to improve the interchange of State Route 91 (SR 91) and Van Buren Blvd. (SR 91 kilo-post [KP] 21.9 to KP 23.3) (post mile [PM] 13.6 to 14.5). The proposed project will provide ramp improvements, including an eastbound SR 91 hook on ramp from Indiana Avenue west of Van Buren Blvd. and a new SR 91/Van Buren Blvd. over-crossing (widened from four to six through lanes plus dedicated turn lanes). The project will improve freeway access and egress, and reduce freeway congestion by reducing mainline queuing near existing inadequate ramps. The project will improve arterial intersection levels of service by providing additional through lanes and stacking pockets. Diesel truck percentages on arterial roadways around the interchange are not considered substantial. As documented below, the proposed project is not considered a Project of Air Quality Concern. A PM-2.5 hot spot analysis is not required for the proposed improvements.

Projects of Air Quality Concern (POAQC)

POAQCs are listed in 40 CFR Part 93 (at 93.123(b)(1)). Types of transportation projects that are of concern, and for which a PM-2.5 "hot spot" analysis is required to demonstrate Clean Air Act (CAA) conformity, include the following:

- Projects that carry a significant number of diesel-fueled vehicles, or projects that will promote a substantial increase in the numbers of such vehicles,
- Projects that include heavily congested intersections with extended idle times by substantial numbers of diesel-fueled vehicles,
- New bus or rail terminals or transfer points serviced by a significant number of diesel vehicles congregating at one location,
- Substantial expansion of existing bus or rail terminals that significantly increase the number of diesel vehicles congregating at a single location, or,
- Projects which are identified in PM-10 or PM-2.5 State Implementation Plans as sites of violation or possible violation of ambient air quality standards.

Certain minor projects are identified as categorically exempt from a "hot spot" analysis requirement. The remaining non-exempt projects that are not POAQCs do not require a hot spot analysis based upon EPA's findings that such projects will not have an adverse effect on air quality. They thus meet the requirements of the CAA without further analysis.

EPA has not finalized suggested analysis protocols for POAQCs. Any analysis must therefore be qualitative. EPA has, however, stated a threshold level for diesel-fueled vehicles that would be considered less-than-substantial. The guidelines (see 71 FR 12491) consider a roadway project that carries 125,000 ADT or less, and less than 8 percent diesel vehicles, to be non-POAQC. FHWA has interpreted this to mean that 10,000 diesel vehicles per day is the threshold level defining "substantial" (fhwa.dot.gov/.../pm25faqs, May 18, 2006). Higher ADT projects may be non-POAQC if they have lower diesel percentages as long as this relationship is met:

$$\text{ADT} * (\text{diesel percentage}) < 10,000$$

The diesel truck percentage on SR-91 at the Van Buren Blvd. interchange, and on Van Buren Blvd. crossing SR-91, were obtained from Caltrans and City of Riverside traffic counts in order to determine if the existing or future configuration is potentially a POAQC. The project traffic study (March, 2004 and January, 2006 update) was also evaluated to determine intersection performance (levels of service). Projects that reduce intersection idling times by improving levels of service are considered air quality positive and further attest to the project not being a POAQC.

Diesel truck percentages on the SR-91 were obtained from Annual Average Daily Truck Traffic on the California State Highway System (Caltrans, 2005). The last verification of truck mixes at the Van Buren Blvd. interchange is too outdated to be meaningful. The truck mix census at La Sierra Avenue two miles southwest of the project site was therefore used as the most recent SR-91 count. The total diesel truck traffic in mainline traffic lanes (HOV lanes were assumed to carry minimal diesel traffic) were as follows:

2-axle (10% of total 2-axle)	-	512 vehicles
3-axle (assume 100% diesel)	-	853 vehicles
4-axle (assume 100% diesel)	-	426 vehicles
5-axle (assume 100% diesel)	-	5545 vehicles
TOTAL	-	7336 vehicles

Future mainline traffic is forecast to increase by 32 percent between 2005 and 2025 due to cumulative growth unrelated to the proposed project. The existing diesel truck percentage was assumed to remain constant into the future. The future build-out diesel truck traffic volumes on the SR-91 mainline will be 9,690 AADT. This level is slightly below the POAQC threshold of 10,000 AADT. The improvements to surface traffic flow created by the proposed project further enhance the finding that the project is not of air quality concern.

Traffic counts on Van Buren Blvd. between the west-bound SR-91 off/on ramps and the Indiana Avenue intersection similarly show relatively low numbers of diesel vehicles. A two-hour count of vehicles between the west-bound ramps and the Van Buren/Indiana intersection showed the following numbers of diesel vehicles:

2-axle (131 @ 10% diesel)	-	13
3-axle (100% diesel)	-	51
4-axle (100% diesel)	-	17
5-axle (100% diesel)	-	48
TOTAL Diesel Trucks	-	129
TOTAL All Vehicles	-	4289
Diesel Percentage	-	3.0%

ADT on the bridge over-crossing is forecast to increase from 30,069 in 2005 to 40,059 in 2025. If the same 3.0 percent diesel fraction is maintained, diesel traffic will increase from 902 trucks per day to 1,202 trucks per day. The arterial diesel truck contribution is small, and any increase in truck volumes will be off-set by substantially improved intersection performance as noted below.

The levels of service (LOS) at surface street intersections as a function of project implementation as shown in the project traffic study are as follows:

Intersection	Existing		2025 – No Project		2025 – With Project	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
WB SR-91 Ramps @ Van Buren Blvd.	E	F	F	F	B	C
Van Buren Blvd. @ Indiana Avenue	B	C	E	E	C	D
EB SR-91 Off-Ramp @ Indiana Avenue	C	D	B	C	B	C

The proposed project will dramatically improve the level of service at the west-bound off-ramp during both the morning and evening peak traffic hours, and will prevent the Van Buren/Indiana intersection from developing unacceptable delays (LOS = E) during both the morning and evening rush hours. The LOS=F performance of the signal at the top of the west-bound off-ramp may also cause congestion effects to propagate down the off-ramp and into the mainline because of excessive queuing and weaving at the bottom of the ramp. The proposed project will reduce excessive idling delays near the signal, and prevent mainline travel speed impacts from extensive vehicle queues. Diesel particulate matter emissions are reduced both with decreased idling times, and with free-flow traffic speeds on the mainline. The "with project" condition would measurably reduce diesel exhaust particulates compared to the "no project" alternative from improved speeds and reduced idle delays. The proposed project meets CAA requirements as specified in 40 CFR 93.116, and would not create new, or worsen any existing violations of national PM-2.5 ambient air quality standards. An explicit PM-2.5 "hot spot" analysis is not required for the proposed interchange improvements.